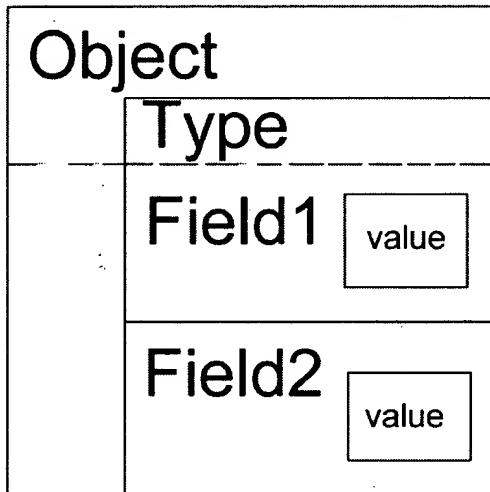


# ***Object Oriented Runtime Comparison***

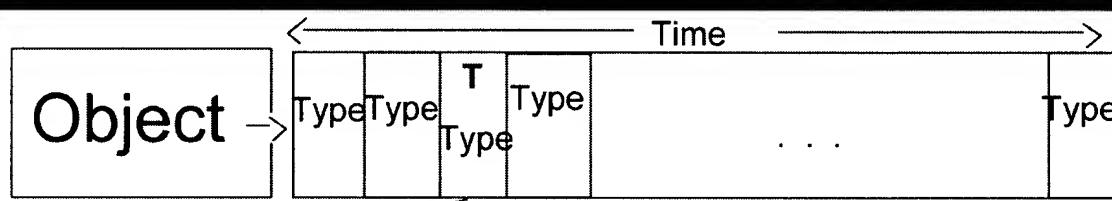
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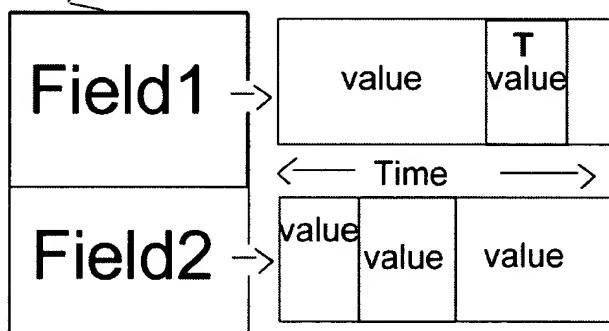
**OOP**

To evaluate Object.Field1:  
1) Lookup static Type,  
2) Lookup static Field1 location,  
3) Retrieve value.

**FIGURE 1**



**Temporal OOP**



To evaluate Object.Field1:  
1) Lookup Type at time T,  
2) Lookup Field1 location,  
3) Lookup value at time T,  
4) Retrieve value.

**FIGURE 2**

GENERAL ERROR CONDITIONS

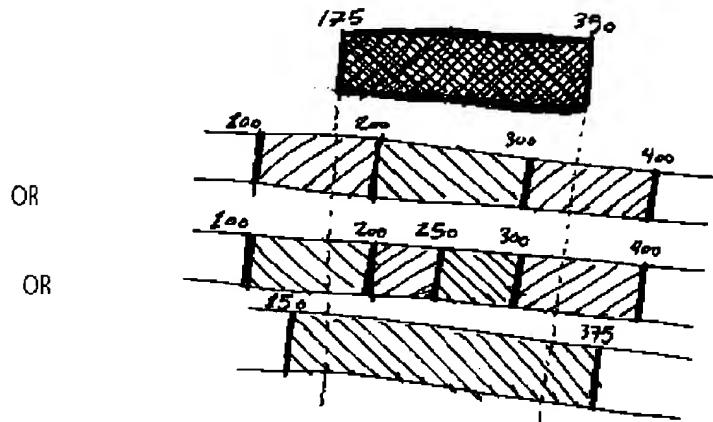


FIGURE 3

ADD\_NEW\_ATTRVAL\_SHIFT (ONE END-POINT)

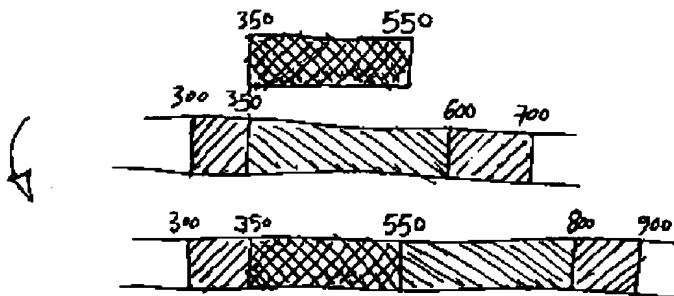


FIGURE 4

ADD\_NEW\_ATTRVAL\_SHIFT (ONE END-POINT)

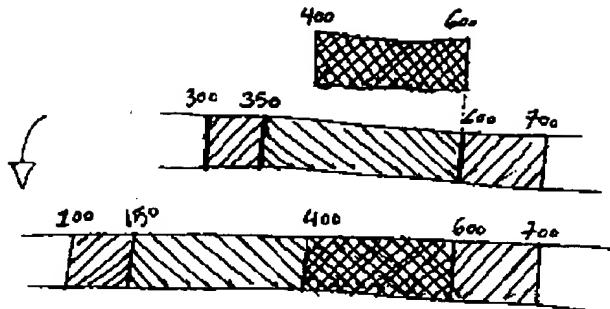


FIGURE 5

ADD\_NEW\_ATTRVAL\_SHIFT (TWO END-POINTS)

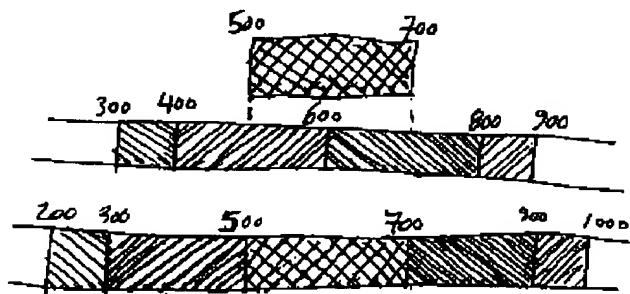


FIGURE 6

GENERAL ERROR CONDITIONS

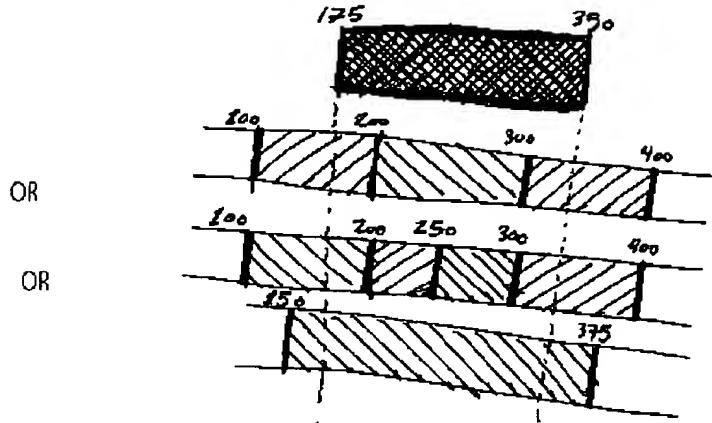


FIGURE 7

ADD\_NEW\_ATTRVAL\_SQUEEZE (ONE END-POINT)

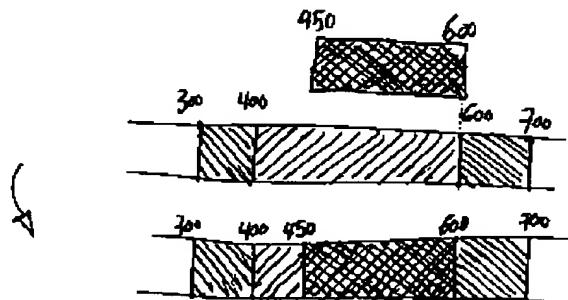


FIGURE 8

ADD\_NEW\_ATTRVAL\_SQUEEZE (ONE END-POINT)

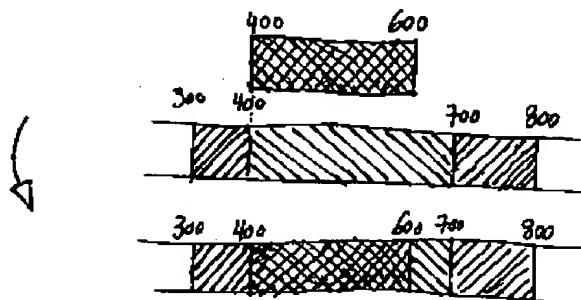


FIGURE 9

ADD\_NEW\_ATTRVAL\_SQUEEZE (TWO END-POINTS)

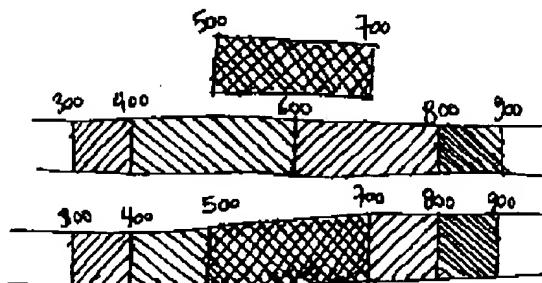
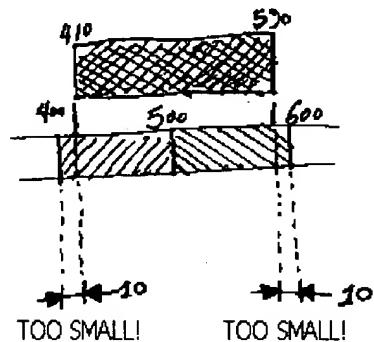


FIGURE 10

ERROR CONDITION - ADD\_NEW\_ATTRVAL\_SQUEEZE



When MIN\_ATTRVAL\_SIZE == 20

FIGURE 11

FINAL\_EDIT\_ATTRVAL\_SHIFT

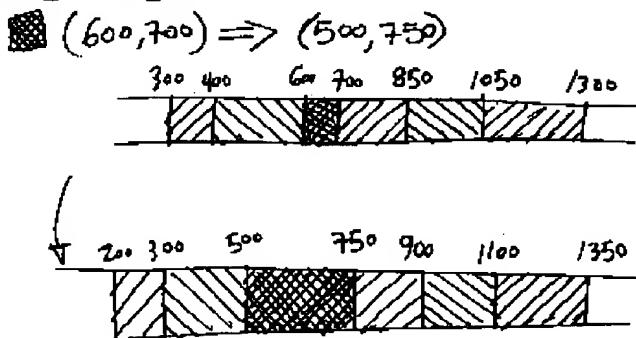


FIGURE 12

FINAL\_EDIT\_ATTRVAL\_SQUEEZE

☒  $(600, 700) \Rightarrow (500, 800)$

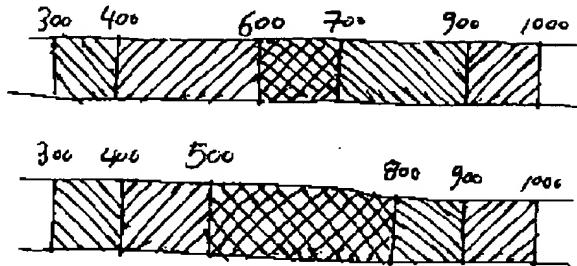
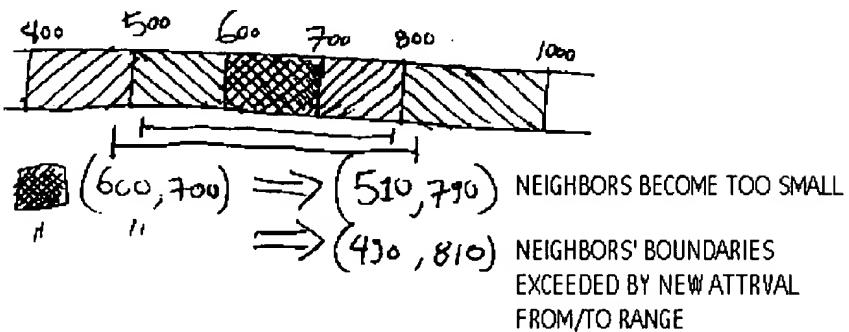


FIGURE 13

ERROR CONDITIONS - FINAL\_EDIT\_ATTRVAL\_SQUEEZE



When MIN\_ATTRVAL\_SIZE == 20 (for example)

FIGURE 14

FINAL\_REMOVE\_ATTRVAL\_SHIFT

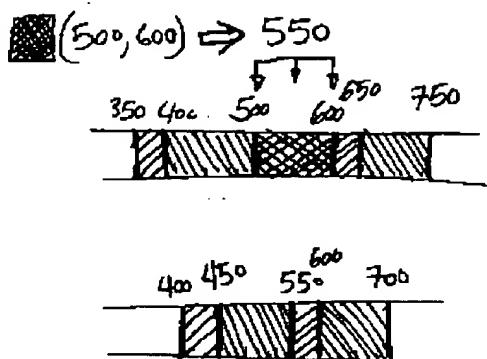


FIGURE 15

FINAL\_REMOVE\_ATTRVAL\_LEAVE\_GAP

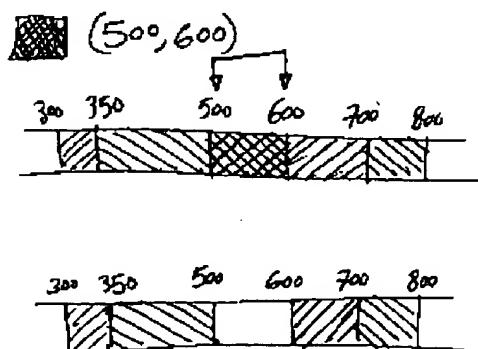


FIGURE 16

FINAL REMOVE ATTRVAL\_FILL

  $(500, 600) \Rightarrow (550)$

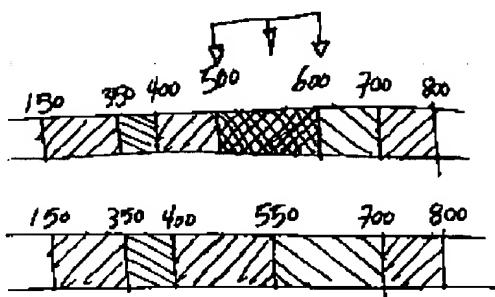


FIGURE 17